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FAX TRANSMISSION COVER SHEET

Date: 04/14/2006

To: TC 1652
US Patent and Trademark Office *Fax: (571) 273-8300*

From: Kenneth K. Sharples *Phone: (505) 667-0304*
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Re: 10/665,455
S-100,654
Arlene A. Wise

Sender: Sharon Ruminer

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Comments:

Included in this facsimile transmittal is the following documens for filing in the above-identified patent application:

Response to Restriction Requirement

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Rev. 06/04/04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Arlene A. Wise	Docket No.:	S-100,654
Serial No.:	10/665,455	Examiner:	D. Ramirez
Filed :	9/18/2003	Art Unit:	1652

For : DETECTION OF PHENOLS USING ENGINEERED BACTERIA

Customer No. 35068

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO RESTRICTION REQUIREMENT

Sir:

In response to the Restriction Requirement set forth in the Office Action dated 15 March 2006, please enter the election and traversals which begin on page 2 of this paper.

A current listing of claims begins on page 4 of this paper. Remarks begin on page 9 of this paper.

CERTIFICATE OF MAILING/TRANSMISSION (37 CFR 1.8(a))

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Sharon Ruminer
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Sharon Ruminer
(type or print name of person certifying)

SN 10/665,455
Docket No. S-100,654
In Response to Office Action dated 15 March 2006

ELECTION PURSUANT TO RESTRICTION REQUIREMENT:

The Office has determined that pending claims 9-25 are drawn to eight patentably distinct inventions and has required restriction to one of the listed Groups I-VIII. Applicants elect the invention of Group I, claims 9-21 and 25, WITH TRAVERSE.

Applicants specifically traverse the restriction of claims 22-24 into Groups II-VIII as follows. The Office has determined that there are seven separately patentable inventions covered by claims 22-24, on the following grounds:

1. The Office states that claims 22-24 comprise nucleic acids with an unrelated nucleotide sequence, and further that the nucleic acids can be used to probe different targets and would encode proteins of different structure. Applicants respectfully disagree, as each of the recited nucleic acids encodes a mutant of the same protein, the DmpR protein of *Pseudomonas*, and therefore are indeed related, and encode substantially the same structure. The mutations are limited to only one domain of the protein, the sensor domain, the other domains of the protein being identical. Indeed, the slight differences between these seven nucleic acids is unlikely to permit them to be used to probe different targets. As noted in the specification (page 5, line 24), some of the mutations are "silent" mutations which do not change the encoded amino acid.

2. The Office states that there is a lack of unity within the members of the Markush group as there is no shared common utility and there is no shared substantial structural feature disclosed as being essential to that utility. Applicants respectfully disagree, as there is indeed a shared common utility – each of the nucleic acids encode a mutant of the DmpR protein of *Pseudomonas*, each of which shares the common utility of being an effector molecule capable of being used to drive the expression of a reporter gene following recognition of a phenolic compound. Additionally, there is indeed a shared structural feature essential to that activity – each of the mutant DmpR proteins contain an effector domain that triggers the expression of the reporter gene to which it is attached. The only difference between these seven nucleic acids are mutations in the sensor domain of the protein, all other domains remaining identical.

Moreover, according to MPEP section 803.02:

The members of the Markush group (A, B, and C in the example above) ordinarily must belong to a recognized physical or chemical class or to an art-recognized class.

Broadly, unity of invention exists where compounds included within a Markush group (1) share a common utility, and (2) share a substantial structural feature ** essential to that utility.

These standards are met in this case, since the members of the Markush group are all mutational variants of the same *Pseudomonas* DmpR protein. Each of the nucleic acids in the group belong to the same art class, i.e., class 536, subclass 23.1. Again, each of the members of the group share a common utility, and share an essential structural feature essential to that utility.

Finally, applicants submit that the members of this Markush group are sufficiently few in number and are so closely related that a search and examination of the entire claim can be made without serious burden. In such a case, even if the claim is directed to independent and distinct inventions, MPEP Section 803.02 indicates that the examiner must examine all the members of the Markush group in the claim on the merits.

Therefore, applicants respectfully request reconsideration and withdrawal of the restriction as to Groups II-VIII, and suggest that Groups II-VIII instead be combined into a single group.